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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/765,444	01/22/2001	Allen Louis Gorin	2000-0109	8988

26652	7590	04/29/2005

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EXAMINER
LERNER, MARTIN

ART UNIT	PAPER NUMBER
2654	

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
Office Action Summary		09/765,444	GORIN ET AL.
		Examiner	Art Unit
		Martin Lerner	2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>21 January 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 3, 5 to 15, 17, and 19 to 27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1, 6 to 15, and 20 to 27* is/are rejected.

7)☒ Claim(s) *3, 5, 17 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All   b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1, 6 to 11, 14, 15, 20 to 24, and 27 are rejected under 35 U.S.C. 102(e)

as being anticipated by *Carpenter et al.*

Regarding independent claim 1, *Carpenter et al.* discloses a method of

automated call routing, comprising:

"determining whether a probability of understanding the user's input

communication exceeds a first threshold, wherein if the first threshold is exceeded,

further dialog is conducted with the user and if the first threshold is not exceeded, the

user is routed to a human for assistance" – term extractor 402 receives text generated

by the automated voice recognition system from the caller's voice responses ("the

user's input communication"), and extracts relevant terms from the text; the terms are

organized to form a query 404, which is used to match the caller's response to one of

the set of documents 210A . . . 210N using information contained in scoring matrix 212

(column 7, lines 46 to 55: Figure 4); selection processor 412 compares a query-document score ("a probability of understanding") for each of the documents against a threshold ("a first threshold"); if the query-document score meets or exceeds the threshold for exactly one document, the routing module routes the call to the destination associated with the document whose score meets the threshold; if the query-document score meets the threshold for more than one document, the query is ambiguous, and the call is transferred to the disambiguation module 208; if no document has a score meeting the threshold, the call is transferred to a human operator 214 ("if the threshold is not exceeded, the user is routed to a human for assistance") (column 8, line 59 to column 9, line 2: Figure 4); disambiguation module 208 receives the query, and passes the query and the identities of the documents to question generator 502, which creates disambiguating questions ("further dialog is conducted with the user") (column 9, lines 33 to 43: Figure 4).

Regarding independent claim 15, *Carpenter et al.* discloses an apparatus for automated call routing, comprising:

"a dialog manager that outputs dialog to the user" – routing system 102 receives calls from a caller 216 and provides information and poses questions to the caller 216 using voice prompts produced by voice synthesizer 202; the caller 216 provides voice responses, which are received and converted to text by voice recognition unit 204 (column 3, lines 41 to 51: Figure 2); thus, routing system 102 provides functions of

using voice prompts, posing questions, and receiving voice responses equivalent to "a

dialog manager";

"a language understanding monitor that determines whether a probability of

understanding the user's input communication exceeds a first threshold, wherein if the

first threshold is exceeded, the language understanding monitor prompts the dialog

manager to conduct further dialog with the user, and if the first threshold is not

exceeded, the language understanding monitor prompts the dialog manager to route the

user to a human for assistance" – term extractor 402 receives text generated by the

automated voice recognition system from the caller's voice responses ("the user's input

communication"), and extracts relevant terms from the text; the terms are organized to

form a query 404, which is used to match the caller's response to one of the set of

documents 210A . . . 210N using information contained in scoring matrix 212 (column 7,

lines 46 to 55: Figure 4); selection processor 412 ("a language understanding monitor")

compares a query-document score ("a probability of understanding") for each of the

documents against a threshold ("a first threshold"); if the query-document score meets

or exceeds the threshold for exactly one document, the routing module routes the call to

the destination associated with the document whose score meets the threshold; if the

query-document score meets the threshold for more than one document, the query is

ambiguous, and the call is transferred to the disambiguation module 208; if no

document has a score meeting the threshold, the call is transferred to a human operator

214 ("if the threshold is not exceeded, the language understanding monitor prompts the

dialog manager to route the user to a human for assistance") (column 8, line 59 to

column 9, line 2: Figure 4); disambiguation module 208 receives the query, and passes

the query and the identities of the documents to question generator 502, which creates

disambiguating questions ("to conduct further dialog with the user") (column 9, lines 33

to 43: Figure 4).

Regarding claims 6 and 20, *Carpenter et al.* discloses voice responses from a

caller ("verbal communications").

Regarding claim 7, *Carpenter et al.* discloses it is conventional in the prior art to

provide keypad entries ("nonverbal communications" : "keypad entries") as a substitute

for voice recognition (column 1, lines 21 to 24; column 1, lines 61 to 64); keypad entries

are implicit in any automatic telephone response system.

Regarding claims 8 and 21, *Carpenter et al.* discloses a method and an

apparatus for automatic call routing to a desired destination (column 1, lines 10 to 55:

Abstract); call routing by an organization to an appropriate destination is equivalent to

"customer care".

Regarding claims 9 and 22, *Carpenter et al.* discloses a voice recognition unit

204 ("using recognition data") and a disambiguation module 208 ("using understanding

data") (column 3, lines 23 to 51: Figure 2).

Regarding claims 10, 11, 23, and 24, *Carpenter et al.* discloses a training system

300 and training corpus 302 ("training data stored in a training database") (column 3,

line 64 to column 4, line 5: Figure 3); a scoring matrix 212 is used to identify a

probability of a training document (column 4, lines 26 to 36: Figure 3); a term-document

frequency matrix 310 characterizes probabilities in terms of vectors ("extracted

features") (column 4, lines 54 to 65); implicitly, training provides weights to probabilities

from training data ("recognition, understanding, and dialog data").

Regarding claims 14 and 27, *Carpenter et al.* discloses:

"receiving the user's input communication" – routing system 102 receives a call

from a caller 216; caller 216 provides voice responses (column 3, lines 41 to 45: Figure

2);

"recognizing portions of the user's input communication" – voice recognition unit

204 converts voice responses to text (column 3, lines 45 to 51: Figure 2);

"providing an input to a language understanding monitor based on applying a

confidence function to the recognized portions of the user's input communication" –

terms occurring in the caller's request are weighted by their frequency of occurrence,

and a pseudo-document vector 407 is used for matching to one of the documents 210A

. . . 210N; selection processor 412 retrieves scoring information relating to each

document for the query (column 8, lines 30 to 59: Figure 4).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 12, 13, 25, and 26 are rejected under 35 U.S.C. 103(a) as being

unpatentable over *Carpenter et al.* in view of *Morin et al.*

Carpenter et al. does not expressly disclose a dialog history database including

first and second dialog exchanges, each with an automatic dialog output and a user's

input communication. However, *Morin et al.* teaches a related supervised contextual

language acquisition system, wherein history handler 62 is responsible for providing the

context handler 68 with long-term information on the dialogue, including the last

dialogue instructions and input markers. (Column 10, Lines 16 to 25) The dialogue

history is used to derive forms of probability levels supplied to uncertainty solver 54.

(Column 22, Lines 7 to 13) Uncertainty solver 54 assists the central processor in

choosing a correct hypothesis when several candidates for a given input are generated.

(Column 10, Line 54 to Column 11, Line 14) The stated advantage is that a dialogue

history containing the dialogue exchanges already made permits the system to

automatically make use of the immediate context to improve performance. (Column 3,

Lines 6 to 25) It would have been obvious to one having ordinary skill in the art to utilize

a dialog history database as taught by *Morin et al.* in the method and apparatus for

automatic call routing of *Carpenter et al.* for the purpose of improving performance by

permitting the system to automatically make use of immediate context.

Allowable Subject Matter

5.   Claims 3, 5, 17, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6.   Applicants' arguments filed 21 January 2005 have been considered but are moot in view of the new grounds of rejection.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to Applicants' disclosure.

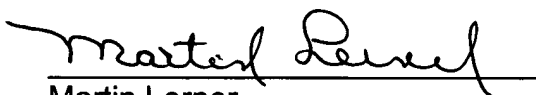San Martin et al. and Levin et al. disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (703) 308-9064. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

ML
4/21/05

Martin Lerner
Examiner
Group Art Unit 2654